The Australian National University
Institute of the Arts

Canberra School of Art

GRADUATE DIPLOMA OF ART
1997

Megan Jones

REPORT
PRESENTED IN FULFILMENT OF THE REQUIREMENTS OF THE
GRADUATE DIPLOMA OF ART

Contents

Abstract

VIRTUAL REALISM: research into digital imaging and interactive multimedia. The work explores photographic representation of landscape panoramas combined with user interactivity and virtual reality elements of motion and sound. A study taking the form of an exhibition of multimedia screen projections and printed photographic panoramas exhibited at the Canberra School of Art Gallery from August 21 to September 7, 1997 which comprises the outcome of the Studio Practice component, together with the Report which documents the nature of the course of study undertaken.

Acknowledgments

Special thanks to Mr Rew, "the Pathfinder", for his valuable direction, support and assistance during the CyberTrek project.

Thanks to John Reid for taking me to Blue Water Holes and David McDowell for his problem solving assistance. Many thanks to the Photomedia Workshop, especially Samantha Lau, Denise Ferris and Martyn Jolly for their creative support and laughter during the good times.

Thank you to PCTech and Apple Computers, Inc. for their support through the loan of Macintosh computers and data projector used in my graduating exhibition at the Canberra School of Art Gallery 1997.

Introduction

Blue Water Holes CyberTrek is an interactive multimedia journey of virtual realism, developed as printed photographic images, a CDRom experience featuring Quicktime VR panoramas and digital video, and as a World Wide Web site accessible from anywhere in the wired world. A realistically simulated 3D environment has been created by combining the elements of sound, motion and photographic detail to depict panorama locations along trekking paths of Blue Water Holes in Kosciuszko National Park. This work was inspired by my interest in landscape and digital photography, cyberculture, and new imaging software developments such as Quicktime VR which enhance the viewer's experience of still images. The aim of this work was to translate journey and exploration of space and matter of a natural environment into an interactive experience through photographic representation of the environment and incorporating time based elements such as motion of imagery and sound.

Blue Water Holes CyberTrek: Landscape in Cyberspace

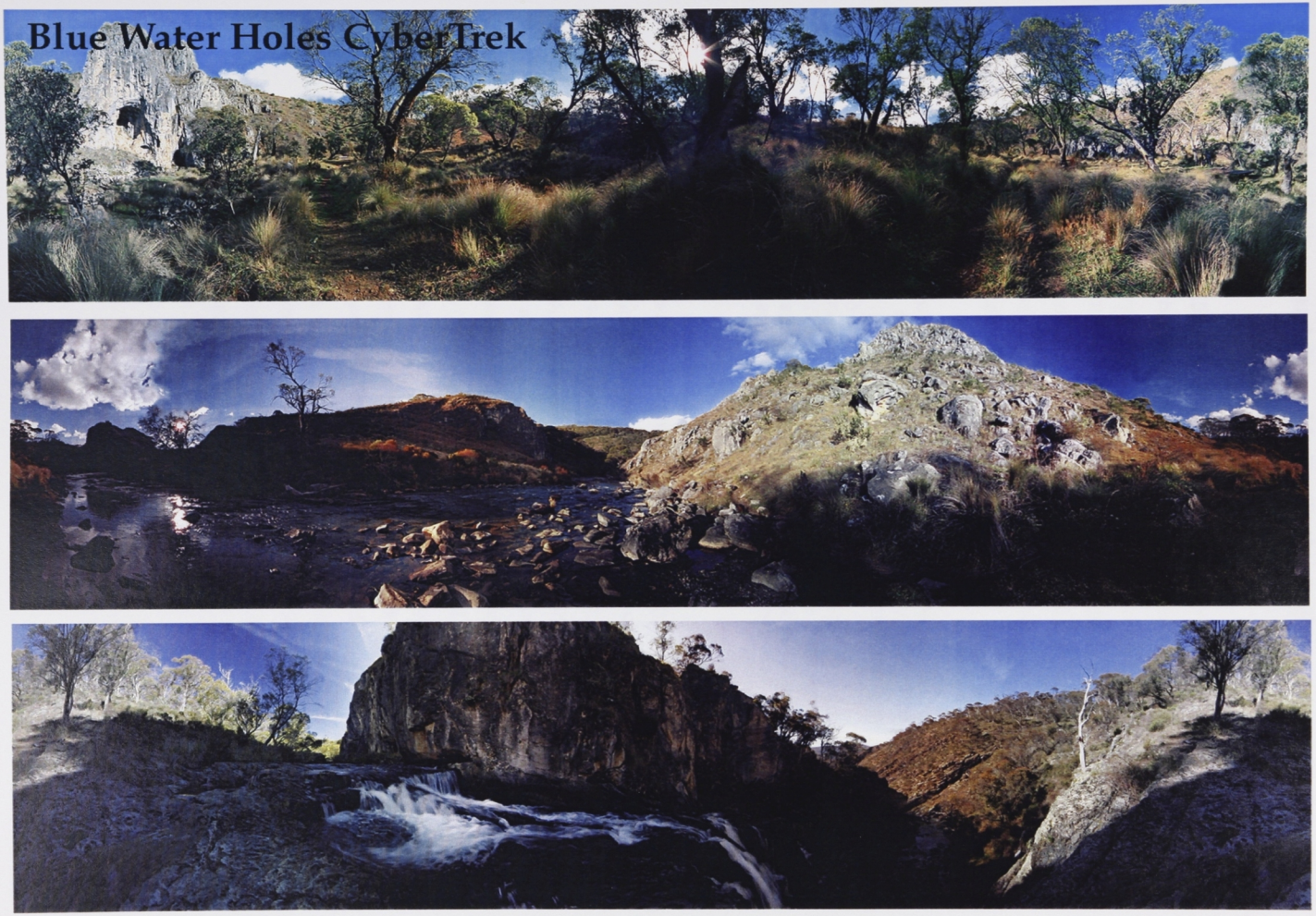
Blue Water Holes CyberTrek is about pioneering the new digital frontier of landscape imagery and representation. The interactive multimedia work incorporates the realism of photographic images with virtual reality elements of sound and motion to create a virtual realism experience of landscape in cyberspace. *CyberTrek* is about the event of passing through the landscape and represents motion, change and time in the environment through series of Quicktime VR panoramas and digital video. The combination of photographic images with user interactivity and motion enhances the experience of viewing landscape panoramas as the cruser (creative user) has co-creative control to fragment and emphasise elements of the image.

The images of all encompassing panoramas featured in *CyberTrek* depict the colours, forms and beauty of the Blue Water Holes landscape. Sites of panorama locations were selected on aesthetic judgements and criteria such as mid to far reaching views of landscape forms with maximum depth of field; unique features of the landscape detailed in the foreground such as tree trunks, rock formations, creek beds, and foliage; and sequential sites along the track to give a sense of moving through the environment. During exploration of the natural environment, *CyberTrek* became structured as four linear journeys which best captured the features and diversity of the landscape. These four walking treks were the Blue Water Holes camping area, along Cave Creek to the Waterfall, through the plains and along the dry rocky creek bed to Coolamon Cave, and finally through the Coolamine Homestead.

The relationship and impact of man on this environment is a subtle theme in the work. It is futile if not impossible to portray a natural landscape without including the modifications made by human culture and the myths, memories, and obsessions which shape our perceptions of landscape. As Simon Schama suggests "...we are accustomed to separate nature and human perception into two realms, they are in fact indivisible. Before it can ever be a response for the senses, landscape is the work of the mind. Its scenery is built up as much from the strata of memory as from layers of rock" (1). The panoramas in *CyberTrek* include the established tracks and camping grounds, trek markers, and of course the Homestead which represents white man's presence and landownership in the area for over a hundred years. The direction of experience is confined to following the trekking paths to encourage the notion of following the track to accessible sites rather than bush bashing through pristine

accessible sites rather than bush bashing through pristine wilderness for the undiscovered location, as is featured in much landscape wilderness imagery.

Blue Water Holes CyberTrek can be described as minimalistic in interface to such a complicated process of capturing the realism of the landscape. The idea of seamlessness was important to creating the illusion of realism and was achieved by the use of digital imaging technologies, which create a new perceptual experience of the constructed photographic landscape image. The entire multimedia piece works like an interactive video to be played and watched. Like a trek through the natural environment, CyberTrek is an experience of motion and observation through a series of linear events in a non-linear structure. The cruser cannot change the landscape, the walking trek or the order in which sites are discovered; they do, however, have the power to experience it in as much or little detail and time as they wish. It is the cruser's prerogative to be fleeting and speedily experience the sites or to be patient and observe, to indulge in the simplicity of this piece which is reflective of the simplicity of the place, in the cycles of nature, and to stop and look and listen.



Megan Jones 1997

CyberCulture and New Media Technologies

The development of digital media for artistic application is similar to the development of photography as both began as new technologies capable of representing reality in a new way, challenging the previous mediums of visual representation and perception. New media developments have provided tools for the imagination to create new terrains of images, sounds, experiences and concepts. The impact of digital media is seen in the revolution of communication functions and forms, spawning a new sub-culture subverting the 90's called Cyberculture.

> "My experiences, far from being original or unique, seem to be part of an enormous cultural metamorphosis. Like millions of others, I have come to feel as comfortable over there in Cyberia, Tubeland, on the other side of my electronic-reality window, as I do operating in the closed-in Terrarium of the material world. My brain, like yours, needs to be clothed in cyberwear and to swim, float, navigate through the oceans of electronic data." - Timothy Leary (2)

Sub-cultures are often the product of the media technology of the age. Cyberculture is the culture of screen inspired Cyberpunks, surfing the waves of information available at their finger tips through new digital communication technology. Digital realities are accessed through the telephone, cinema, radio, television, computers, compact discs, and fax machines and creates a universe of electronic signals, relationships and environments called Cyberia. Cyberspace describes the virtual spaces accessed by computers, such as the World Wide Web (WWW) of sites interconnected and linked by URL pathnames. The virtual digital landscape has redefined ideas of community and experience as issues of locality and identity are transformed by the global network of instant access to information and image via the screen. The WWW has also provided individuals with the ability to publish and exhibit in virtual space. Cyberpunks are those individuals who have evolved with communication technology advances from the television screen dictatorship through the networked world of cyberspace, the interactive world of multimedia, and into the new sensoria of virtual reality (3).

New digital imaging software for image enhancement and manipulation evolved from the convergence of photographic with computer technology during the 1990s. "This post-photographic age sees the computer in its role as a universal machine, capable of synthesising traditional media and integrating them into a new, generalised image technology." (4). Digital production mediums provide new tools for artistic application and expression; for example, Adobe Photoshop, Adobe Premier and Macromedia Director have inspired use of digital media elements in contemporary art practice. Adobe Photoshop provides a digital photographic darkroom on the desktop to manipulate scanned images in precise adjustments. Video can be digitised and edited in Avid Videoshop and Adobe Premier to create Quicktime movies. Animation and the combination of visual and audio elements is produced in Director and has developed interactive multimedia as a production format for commercial and artistic applications. Quicktime VR is revolutionary in the way it is co-creative in constructing the gaze to enhance an interactive media experience of an environment, allowing the viewer to frame and direct their experience of a simulated landscape image.

Quicktime VR (QTVR) was developed by Apple Computers and allows the viewer, or cruser (creative user), to interact with a seamless 360 degree photographic panorama in a similar way to how one sees. By directing the mouse over the panorama, the image pans left and right, up and down and the cruser has the options to zoom in and out to their desired level of detail. This interaction with the seamless wide angle image allows the cruser to frame their own image and experience or observe the panorama site in an individually unique way. Interactive multimedia is a screen based medium possessing similar cultural affiliations as other screen based media such as television and film. The screen has become credible and "truthful" as a learning tool in the information age, as we learn what is real through media experience and perception at a distance. McKenzie Wark defines the space we inhabit through global media events as Virtual Geography, as it is through the shared experience of these stories and places that we can discuss them as real occurrences. Virtual Geography describes the living room experience of the screen event, which offers a different kind of perception of media stories around the world as opposed to perceptions gained at those events we experience by being there (5). These media experiences give physical locations a virtual and universal locality, and become real to those who have engaged in the screen event to become part of a shared frame of reference.

The technologies which allow electronic images to be received, processed and transmitted has increased the individual's ability to disseminate information and to cast, produce, script, direct and distribute media. Relationships can be based in cyberspace creating virtual communities as interaction occurs via the computer: on-line chats, e-mail and shared web surfing and linking. The idea of using a computer to simulate an environment, object, experience or process and allow the viewer to participate in it has been developed in various forms of virtual reality techniques.

> "Virtual Reality is, in many ways, the inevitable conclusion of the society of the spectacle. With the inexorable expansion of the mediascape, all reality is mediaized and thus becomes virtual." (6)

Virtual reality frequently refers to sensory-immersive, interactive experiences generated by a computer. The elements of audio, visual and interactive motion combine to create virtual 3D experiences through a human-computer interface. The hype surrounding the promise of immersive virtual realities has had little realisation other than in science fiction, and those pioneering VR are often clumsy geometric simulations with no basis in the material world.

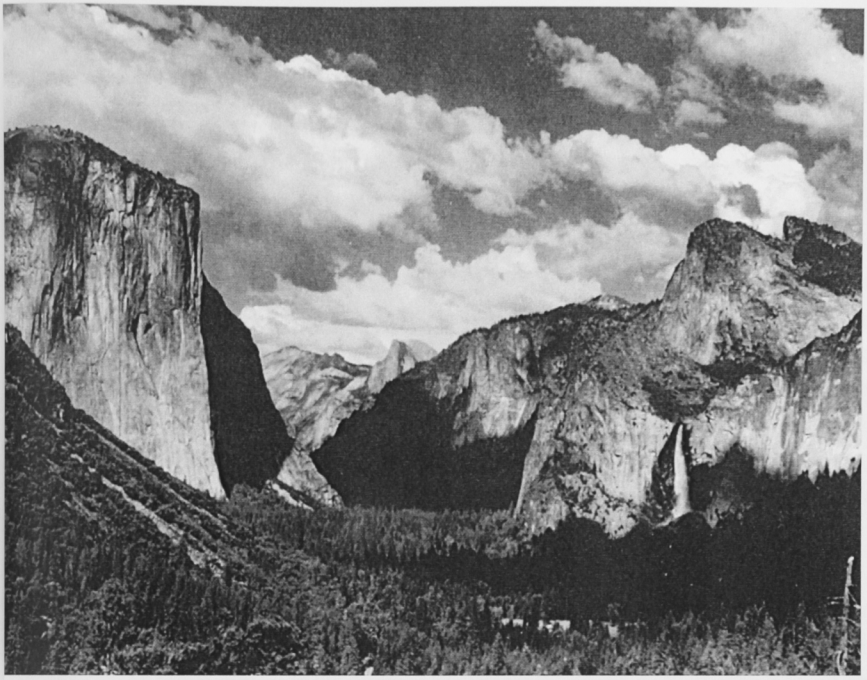
Representation of the Landscape Image

As image making technology has advanced, our perceptions and techniques of landscape representation have evolved. Landscape is challenging to the photographer as the elements of earth and sky are unpredictable and uncomposed, and yet must be captured to convey the presence of the scene. It is in the process and technique of portraying landscape that cultural values and interpretations based on myths, memories and previous experiences are expressed. Yosemite Valley and Park is an example of landscape and wilderness transformed by photography over the past century, having been protected for conservation ideals, and ultimately propagated by tourism. Wilderness is the product of culture's framing, and Yosemite has come to represent an American Eden through the sweeping still images of photographers such as Carleton Watkins and Ansel Adams (7). These "traditional" photographers presented spectacular nature-icons featuring mountains and lakes with no human presence, and used the still image to freeze the moment. The visions of Ansel Adams recall a world before development, through perfect exposure and printing of large format negatives, he presents a new romantic notion of landscape.

David Hockney, British artist turned photographer, photocollaged the *Merced River, Yosemite Valley* during the 1980s and presented a new way of seeing and envisioning the landscape. This photograph presents multiple perspective simultaneously, layering images to convey the sound and motion of the rushing stream. He has challenged the linear perspective of camera vision and introduced time and the body into the photograph by creating new techniques of representation with the same instrument photographers employ to represent landscape: the camera (8).

The Yosemite Valley is now accessible in cyberspace, with Quicktime VR panoramas of the valley taken by Scott Highton as the new representation of this historically promoted landscape. The Web site contains all the information about the park, its history and timeline, and has links to all things related, particularly tourism details. The virtual existence of Yosemite imagery and information illustrates the evolution of visual representation of landscape as the visions of nature are transformed by the technology of the age. *Blue Water Holes CyberTrek* reflects the Yosemite Park example in the evolution of technique and process of representing unique mountainous landscape; from the photographic two dimensional images through to the virtual existence of panoramas on the World Wide Web.

Valley View from Tunnel Espanade



Ansel Adams

The Merced River, Yosemite Valley

David Hockney 1982

The panorama is historically a popular technique of photographing the landscape, and has evolved within cultural ideas of spatial representation . The modern panorama, for example Robert Coulter panoramas of Canberra taken in 1912, established a critical distance between the object (landscape) and the subject (the photographer/viewer). These wide angle images capture an all-encompassing view taken from a superior vantage point, a fixed perspective for the viewer to observe. Jan Dibbets deconstructed the modern panorama during the 1970s and 80s by drawing attention to the component parts of panoramas and representing the landscape image with simultaneous multiple perspective. Dibbets panoramas made constructed imaginary landscapes from components, for example the *Panorama Dutch Mountain Land* (1971) series, in which mountains and valleys were invented from a core set of landscape images (9). Dibbets architectural panoramas introduced alternative ways of seeing panoramic images other than the one viewing position of the traditional panoramic representation by layering components taken at multiple perspectives.

Samantha Lau, Candidate for the Master of Visual Art CSA, also contradicted the qualities of the modern panorama and constructed subjective interpretations of the Canberra urban environment in the series of panoramas *Interzone* 1996. These images were subjected to what she describes as "personal interference" in spatial representation. The colour photographs were constructed as 360 degree panoramas made up of several components or separate images which did not join seamlessly but could be read as a whole. Sam countered the criteria of the modern panorama by photographing relatively enclosed urban landscapes, and employing techniques of minimum depth of field, limited sense of distance and detail, and a sense of phenomenological disorientation where there is no immediate sense of location or view (10)

The term panorama has been altered technically and perceptually with the advent of Quicktime VR. The Quicktime VRs of Blue Water Holes in CyberTrek were developed from this technology that alters panoramic representation of landscape and introduces third dimensional elements of motion and time to the observation experience. The seamless 360 degree panoramas are photographed from one perspective, like modern panoramas, and capture the linear perspective of camera vision represented in the two dimensional images. Once in cyberspace in the Quicktime VR mode, the elements of time, motion and user interactivity are incorporated as the panorama is framed by the viewing screen and must be directed through panning and zooming controls to reveal the landscape scene.

The growth of Quicktime VR on the World Wide Web has promoted this new representation of reality and the photographed image to take crusers into landscapes, architecture, 3D rendered artificial environments, and into space. The Pathfinder mission to Mars, for example, sent back images of the surface as a 360 degree panorama which was stitched together and placed on the internet as Quicktime VR. The website has to date had over 400 million hits and successfully represents the missions images of the Mars landscape as they had been photographed from on top of the buggy. Quicktime VR provides an experience of virtual navigation of an unknown inaccessible environment, accessible within the Cyberspace of a personal computer.

Landscape in CyberArt

The representation of landscape by interactive multimedia artists has mainly been through computer generated images, in contrast to the Blue Water Holes CyberTrek representation which is based on the realism of an actual landscape. *Osmose* by Char Davies, is an inspired silicon dream about life, nature and the body. *Osmose* was created in cyberspace with the aim to re-embody virtual space. The immersant, or VR user, is transported into a luminous landscape of artificial organic nature and interacts with the work by the motivation of breathing to navigate their way through forests and streams of light seen with a VR helmet and projected onto a screen for others to watch. *Handsight* by Agnes Hegedus encourages interaction with a computer rendered environment with the use of an "eye-mouse". The user moves the eye-mouse inside a large plexiglass sphere to reveal the 3D space filled with objects on a screen in front of the user. Jeffrey Shaw's interactive display *Legible City* simulates the experience of cycling through a 3D rendered city environment constructed of letters, words and sentences. The cyclist peddles and directs their motion as the three dimensional letters moves past according to the users interaction. These artists have incorporated the screen event with alternative navigation devices such as the head set, bicycle and eye-mouse, whereas CyberTrek has maintained the keyboard and mouse as navigation devices for a comfortable and conventional human-computer interface.

The creation of artificial environments can generate unique worlds and entities for the viewer's interactive entertainment. *Myst* is a popular computer generated game of exploration and journey through an environment. The simulated landscape is traversed by the user with goals to achieve and is one of the more successful games to virtually experience exploration of a three dimensional artificial environment. Troy Innocent's multimedia installation *Memetic Mutation* 1997 is an interactive virtual fantasia of invented species, pictorial styles and soundscapes to represent "manifestations of electronic space, ranging from plastic, corporate knowbots to dreamlike, surreal iconography" (11). Jon McCormick and Karl Sims have used genetic algorithms to create artificial life in virtual environments. McCormick constructed *Turbulence*, a virtual museum of computer synthesised forms which exist only in cyberspace and whose form and behaviour are the result of 'algorithmic ecosystems' (12). Karl Sims has produced a major work *Panspermia* which is the story of virtual life forms evolving in (cyber)space and the various ways these creatures can walk, swim, and fly in artificial

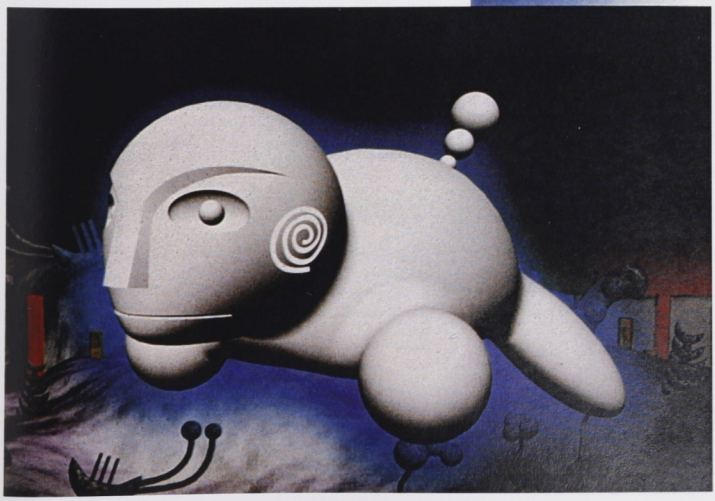
reality. The artificial environment is based in cyberspace alone and is constructed from the imagination and computer programming. Virtual realism is differentiated from these artificial virtual environments as it is based on photographic representation of the material world, although this basis has no foundation in truth due to digital manipulation of photographic images.

Digital imaging has altered the perception of the photographic image as an accurate and reliable recorder of reality, mainly because of the ability to seamlessly manipulate and retouch images. Many photographers and artists have taken the challenge of pioneering new imaging technologies and incorporate them in contemporary art practice. Pedro Meyer is a photojournalist turned digital imaging artist who reconstructs an illusion of real space with accurate precision and subtle surrealism in content. His images are photocollages with seamless qualities to convey powerful insights into human nature and the nature of perception, and to subvert the myth of photographic truth.

> "With the digital revolution, the photograph breaks its loyalty with what is real, that unique marriage between the arts, only to fall into the infinite temptations of the imagination. It is now more the sister of fantasy and dreams than presence." -Veronica Volkow, Poet, Mexico (13)

Osmose
Char Davies

Legible City
Jeffrey Shaw



Memetic Mutation
Troy Innocent

Description of the CyberTreks

Blue Water Holes CyberTrek simulates in Cyberspace the experience of trekking through the landscape of Kosciuszko National Park. The metaphor of trekking is central to the work as it defined the linear structures of the Treks and the interactivity of panorama sites. How the cruser interacts with the Quicktime VR is similar to how one views a scene, by observation over time, whereas the Trek between sights is captured on video as impressions of the terrain and reflects the non-observation of moving through the landscape. In recreating the experience of the treks, I have placed subtle interpretations of the scenes and represented the various sites by using different photographic techniques, film type, light or time of day, and digital manipulation techniques. The locations of panoramas were selected on aesthetic representation of the landscape, photographic composition, and on consecutive sites along the established path to a destination point.

The entire journey along the path itself between panorama locations was recorded on Hi-8 Video, and then digitised using Avid Videoshop and Adobe Premier software. These video links were shot with the intention of offering the viewer a sense or impression of the motion and terrain one would Trek through and the strategy involved in moving through this environment. By following the track and setting the focal length to the immediate path ahead, the camera captured interactivity with the environment, it recorded reactions to the terrain as the (virtual) traveller negotiates their way through the landscape; along established paths, across stepping stones, over rocky creek beds, through wild grass, into caves etc. The digital technique of heavy pixelisation and saturation of colour was inspired by films such as *Until the End of the World* directed by Wim Wenders which portrayed the digital recording of sight and dreams of Cyberjunkies, and *Nadja* presented by David Lynch which used a Pixelvision camera in black and white to creatively represent the vision of vampires. These filmic techniques present alternative visual narratives in cinema, changing the way stories, perspective, and perception can be expressed. The digital quicktime movies in CyberTrek present the cruser with brief impressions or memories of the motions, features and sounds of the different Treks. The full photographic panoramas complement these impressions with user interactivity and detailed observation of all encompassing scenes.

Coolamon Cave Megan Jones 1997

The panoramas photographed in the Blue Water Holes camping area follow the flow of water all along Cave Creek to the waterfall and were captured in colour on Agfa Optima film. This film, in conjunction with a polarising filter on the lens, recorded the brilliant colours of Blue Water Holes. The landscape is characterised by turquoise swimming holes, stepping stones and floating algae in the shallow creek, Black Sallies with their intensely coloured strips of bark, green and gold foliage, wildflowers, bright blue skies with fluffy white clouds, and blue grey rock faces. The colour panoramas best capture realism of the area and are presented with colour digital video following the red dirt paths between sites. The Blue Water Holes Trek panoramas were shot from 4pm to 6:30pm and record the changing light and shadows as time and location progress to the final sunset image at the end of the trek. These panoramas enhance the natural forms of the scenes with heavy shadows and warm highlights, and often include sun flare as the sun set. Rather than digitally remove the sun flare spots, I included them to remind the cruser the image is a still photograph taken with a camera and lens recording light on film.

The blue sky colourisation technique used in the Coolamon Cave Trek was engaged to place an impression on this series of sites: sites with no water flowing but instead a dry colourless terrain and bright blue skies with a rocky creek bed to follow to the main feature, the cave itself. The colourisation of the sky was intended to bring out the contrast between the forms of the landscape and terrain to the texture and shapes of the clouds photographed along this Trek. The black and white digital video capturing the walking trek between panoramas was initially in colour, however this affected the seamlessness and was monotoned during post production.

The Coolamine Homestead was photographed in black and white on a cloudy day with TMax 400. TMax 3200 was used inside the hut to capture the rooms without flash. The Homestead was built from alpine ash slabs and corrugated iron with creaking floorboards and walls layered in old newspapers, wallpaper and wrapping paper. The property features stonewalled chimneys and fireplaces, outdoor dunnies, derelict bullock drays and stockyards, a cheese house and iron sheds. It has a history of hardships as the cruel winter took its toll on residences and had recently been restored to some of its former stature. I used black and white imagery to capture the history and textures of the property, and thoroughly documented the site for the Field Studies Program Group Exhibition *LandMarks 3* held in Photospace during September 1996. In this exhibition I presented Fibre based black and white prints of the textures and angular forms of the structures captured on TMax 3200 film to emphasise the tones of the weathered wood.

Coolamine Homestead Megan Jones 1997

I began to experiment with mounting images on aluminium at this time, first using black coated sheets for the fibre prints and then straight natural anodised sheets for the first series on 360 degree panoramas made and printed of the Homestead.
The fourth Trek titled Cave Creek begins on the other side of the creek to the Blue Water Holes camping area and features brilliant colour of mid day polarised images. These panoramas were the last series I shot and stitched together and represent a refined technique after 12 months of planning, learning and practice of Quicktime VR photography and digital manipulation. The Cave Creek series is the most realistic in clarity, colour and detail of the landscape and I feel the colour digital video is the most successful in capturing impressions of the terrain and motion of Trekking between sites. By photographing at mid day I found colour balance was consistent around the 360 degrees whereas the sunset series had proven far more difficult because of the shifting light in the 12 images stitched to make one panorama. The trek concludes with a grey scale panorama of Clarke Gorge from a high vantage point. The grey scale images emphasis the forms and shapes of the landscape and reference back to the photographic process and traditions of landscape representation which I have employed in this new media technique.

The natural cycles of sound in this environment were captured on the video recordings and combined with the visual imagery to complete the simulated virtual realism experience. The cycling nature of sounds capture the natural rhythms of the landscape; the running water, the wind blowing through the grass and trees, bird songs, insects, human breathing and footsteps combine into the songs of nature. These songs play continuously and naturally loop to recreate a listening experience in Blue Water Holes. Although most of the sounds have been recorded in this environment , I have also included bird song recordings made at the National Botanical Gardens. These recordings were combined using SoundEdit 16 software and matched with panorama sites in Director 5.

Cave Creek

Details of my individual work process

Over the period of twelve months, I have made four separate trips to Blue Water Holes to research, immerse myself in, and photograph the landscape for translation into a cyberspace. Over 40 panoramas were photographed, digitised and stitched or constructed from the component images. Three hours of video was recorded and digitised, and audio recordings of natural sounds and songs were sampled to reflect the motion, variation and change I encountered in this environment. The convergence of these media elements occurs through the construction of an original Website and a runtime interactive multimedia piece using this unique imagery as well as printing panoramas for exhibition.

The landscape selected for the virtual experience was directed by the Field Studies Program Semester 1 1996 developed by John Reid in the Photomedia Department, Canberra School of Art. I had decided on representing a natural landscape in a virtual way from this opportunity to experience and immerse myself for several days at a time in Blue Water Holes. Although I had never been to this particular area, it was exciting to be camping in Kosciuszko National Park because of previous experiences in this mountainous region. Upon arriving with the group of students, the overwhelming beauty and diversity of landscape features at Blue Water Holes were immediately recognised as was the fantastic potential for panoramic representation and multimedia application of the various walking treks. As one followed the track, the landscape was constantly changing with the flow of the creek, around each bend a new feature and terrain was revealed. The field studies trips were spent exploring the landscape, selecting sites, reading and researching techniques of representation of landscape, and photographing the panoramas.

To photograph a panorama for digitisation into a QTVR panorama is a detailed process. Before I could begin I required photographic equipment; in particular I purchased an 18-35mm Zoom Sigma lens which enabled me to capture extreme wide angles and gave me the flexibility of focal length for different landscape sites. The lens had to be perfectly centred and balanced over the tripod head; for this purpose I acquired a macro slider tripod head which minimalised distortion of angles as the camera rotated through 360 degrees. In each panorama there are 12 individual shots, taken every 30 degrees. These shots overlapped and had to be digitally scanned on a negative scanner and written to CDRom for storage, which took approximately two hours per panorama and over 100 hours of scanning in total. I digitally stitched the individual images together to create one

seamless 360 degree panorama by using the authoring software MPW to write a script to match and blend the images together. I later stitched some panoramas in Photoshop as I found manually layering the 12 images retained higher levels of detail and seamlessness. The creative process included adjusting density levels, contrast and hue of the images and manipulating them to portray greatest emotional impact. Difficulties were presented in achieving consistent colour balance across the full 360 degrees as colour true to reality shifts as hue varies from sunrise, noon, to sunset. The source panorama was then converted into tiles and made into Quicktime VR movie.

Over the summer of 1996-97, I took the opportunity to print a selection of source colour negatives photographically. These prints became components of a larger 180 or 360 degree landscape panoramas taken from a central perspective position and captured the flowing forms of the Blue Water Holes landscape. For the *After Hours* exhibition of casual staff at the Canberra School of Art in June, I exhibited a 180 degree tryptic panorama of the Waterfall at the end of Cave Creek as a teaser to my graduating exhibition.

The CyberTrek Web site features the completed panoramas and was developed first using Hyper Text Mark-up Language (Html). The website is constructed from Html to display images and text, play the panoramas, make frames and tables, and create links between sites. The site is accessed with a web browser, such as Netscape Navigator requiring Quicktime VR components and Quicktime plugins. The Quicktime VRs were made interactive with the use of hotspots over the paths or tracks in the panorama images. These hotspots became URL links; that is, when the user clicked on a hotspot, the source code instructed a URL pathname link to the next panorama. The Trek became interactive in direction (forwards or backwards) between sites and challenges the viewer to navigate their way through the Trek. Using the URL hotspot links to find the path and travel through cyberspace reflects navigation through the landscape and having to find and follow the path to a new location.

The elements of virtual realism were integrated into the interactive multimedia piece using Director 5 software, which took place after several months of creating the source panorama material and digital video. I had encountered obstacles initially in scripting QTVR into Director as it is a new multimedia format. Apple recently developed an Xtra and source code to script commands and instructions to Director which allows Quicktime VR to be played over the stage. I continuously educated myself on interactivity and

screen design principles such as structure, content and layout, and attended several conferences and exhibitions on interactive multimedia in contemporary art practice. The major conferences/exhibitions were: *The Language of Interactivity* presented by the Australian Film Commission in Sydney; *Burning the Interface* at the Museum of Contemporary Art; and *Short, Sharp and Very Current* held in Melbourne in December 1996.

The main principle of screen design I followed was simplicity. I employed wide screen cinematic proportions to play panoramas and watch the digital video, and used small icons of footprints and arrows as buttons and links. The black stage frames the panorama image as a photograph is framed and movies are projected, with least distractions from the main image. The structure reflects the experience of trekking with four options to choose from and then linear journeys to watch, play and move. To navigate through the CyberTrek, I used the metaphor of footprints as buttons to move to the next sight. When leaving a panorama, motion was triggered as a scripted pan and zoom effect takes the cruser into the path leading to the next site. I decided to use buttons rather than the hotspot links of the Website as it was a simpler navigation device to move forward only and experience the video in between panorama sites. The text was textured with a rock image and all the video was stretched to the same wide screen proportions as the panoramas. Sound was matched to the sites, and fade out transitions used to maintain seamlessness.

For the Blue Water Holes installation, thirteen of the source panorama images were selected to be printed to act as visual references to the landscape on the walls. The printed 360 degree panorama presents an image which cannot be naturally seen and is often confusing and difficult to grasp. Taken from one position, the panorama captures the bowing linear perspective around 360 degrees that shapes the space, which is particularly evident and illustrated in the interior Homestead panorama. Light sources and consequence shadows are revealed as well as what is ahead and what is behind. These images are unique to digital imaging techniques, and were printed using Iris and Laser printers. I mounted the images on natural anodised aluminium with a solid frame backing to make them sit out slightly from the wall. Aluminium is perceived as a new metal and has been used similarly by artists such as Mike Kelly in *Technoforia*, an exhibition of technology and art. Other installation requirements included computer hardware of three Power Macs and a data projector, which I gained through sponsorship by PCTech and Apple computers. The final exhibition will incorporate projection and screen based

presentation of the interactive multimedia work and printed panorama images on the walls. This installation links the digital work to the development of landscape photography, from the printed image to cyberspace, and the new ways of seeing the panorama image. The installation engages the viewer to make connections between the sites on the wall and the events taking place on the screen or projection.

Quicktime VR and other new media technologies build upon the tools of the landscape photographer to represent the realities they encounter in new and interesting ways for audiences to experience. The purpose of Blue Water Holes CyberTrek was to use this evolving element of photography to represent the real landscape and make it accessible in virtual reality and cyberspace. I feel CyberTrek has successfully captured the essence of the landscape trek experience of motion and detailed scenic views, and reflects the diversity of landscape features and terrains by virtual realism in cyberspace.

End Notes

(1) Schama, Simon, Landscape & Memory, London, 1995, p.12.

(2) Leary, Timothy, Chaos & Cyberculture, California, 1994, p.3.

(3) Wark, McKenzie, "Cyberculture", 21C, No. 6, Winter 1992, Melbourne, 1992.

(4) Barker, Robin, Designing the Future The Computer Transformation of Reality, London, 1993, p. 104.

(5) Wark, McKenzie, Virtual Geography, Indianapolis, 1994, p.vii.

(6) Taylor, M. and Saarinen, E. , Imagolies Media Philosophy, London, 1994, p.Virtuality 6.

(7) ibid Schama, p.7.

(8) Romanyshyn, Robert D., Technology as Symptom & Dream, London, 1989, pp.60-63.

(9) Dibbets, Jan, Jan Dibbets, Walker Art Centre, Mineapolis, 1987, p.22.

(10) Lau, Samantha, Graduate Diploma Report, Canberra School of Art, 1996, p.3.

(11) King, Natalie and Duncan, Jenepher, Screen, Melbourne, 1997, p.3

(12) Brown, Paul, "Emergent Behaviours towards Computational Aesthetics", ArtLink Arts in the Electronic Landscape, Vol.16, No.2&3, Winter 1996, p.20.

(13) Meyer, Pedro, Truths & Fictions A Journey from Documentary to Digital, New York, 1996, p.25.

Bibliography

Abe and Shikata, "Perceptual Arena", Art and Design Magazine, No.39, London, 1994.

Adams, Phillip, "Virtual Geography", 21C, Vol:1:96 Melbourne, 1996.

Barker, Robin, Designing the Future The Computer Transformation of Reality, Thames & Hudson London, 1993.

Batchen, Geoffrey, "Spectres of Cyberspace", ArtLink Arts in the Electronic Landscape, Vol.16, No.2&3, Winter 1996.

Brown, Paul, "Emergent Behaviours towards Computational Aesthetics", ArtLink Arts in the Electronic Landscape, Vol.16, No.2&3, Winter 1996.

Crary, Jonathon, "Visual Technologies and the Dispersal of Perception", Jurassic Technologies reverent 10th Biennale, Sydney, 1996

Dibbets, Jan, Jan Dibbets, Walker Art Centre, Mineapolis, 1987.

Di Grappa, Carol, Landscape: Theory, New York, 1980.

Druckery, Timothy (ed.), Iterations: The New Image, MIT Press Cambridge, 1995.

Hayward, Phillip and Woolen, Tana (eds.), Future Visions - New Technologies of the Screen, BFI Publishing London, 1994.

Hofles, S. & Sharples, Dr. G., CD-I Designers Guide, McGraw-Hill London, 1992.

Hueneke, Klaus, Huts of the High Country, Sydney, 1982.

Jacobson, Linda (ed.), Cyberarts Exploring Art and Technology, San Franscisco, 1992.

Jeffrey, Ian, Landscape, London

King, Natalie and Duncan, Jenepher, Screen, Monash University Gallery Melbourne, 1997

Lau, Samantha, Graduate Diploma Report, Canberra School of Art, 1996.

Leary, Timothy, Chaos & Cyberculture, Ronin California, 1994.

Legget, Mike, "The Artist's Interface", ArtLink Arts in the Electronic Landscape, Vol.16, No.2&3, Winter 1996.

Lunenfeld, Peter, "Technoforia", Flash Art, March April 1996.

Matilsky, Barbara C., Fragile Ecologies, New York, 1992.

Morris, Bede, Images illusion and reality, Canberra, 1986.

Meyer, Pedro, Truths & Fictions A Journey from Documentary to Digital, Aperture New York, 1996.

Rheingold, Howard. Virtual Reality, London, 1992.

Romanyshyn, Robert D., Technology as Symptom & Dream, Routledge London, 1989.

Rucker, Rudy, "Brain Plug: or, how I learned to stop worrying about being computer illiterate and love virtual reality", 21C, Vol.4:96, Melbourne, 1996.

Rushkoff, Douglas, Media Virus, Sydney, 1994.

Schama, Simon, Landscape & Memory, London, 1995.

Sheill, A. and Stephen, A. (eds.), The lie of the Land, Melbourne, 1992.

Shaw, Jeffrey, "The Centre for Art and Technology", Art & Design Magazine, No.39, Acadamy Group London, 1994.

Sillman, Andrea G. (ed.), Yosemite Ansel Adams, Boston, 1995.

Taylor, Mark and Saarinen, Esa , Imagolies Media Philosophy, Routledge London, 1994.

Teixeira, Kevin, "Jenny Holzer Virtual Reality: An emerging Medium", Art & Design Magazine, No.39, Acadamy Group London, 1994.

Wark, McKenzie, "Cyberculture", 21C , No. 6, Winter 1992, Melbourne, 1992.

Wark, McKenzie, Virtual Geography, Indiana UP Indianapolis, 1994.

Wertheim, Margaret, "Lux Interior", 21C, Vol.4:96, Melbourne, 1996.

Witelaw, Mitchell, "Is there Art on the Web?", ArtLink Arts in the Electronic Landscape, Vol.16, No.2&3, Winter 1996.

Relevant Web sites

Blue Water Holes CyberTrek
http://www.anu.edu.au/ITA/CSA/photomedia/students/s9530083

Apple QTVR samples
http://qtvr.quicktime.apple.com/sam/sambus.html

Char Davies Osmose
http://artnetweb.com/artnetweb/gallery/code/char.html

Karl Sims - Virtual Creatures
http://www.hip.atr.co.jp/~ray/pubs/fatm/node10.html

Troy Innocent Virtual World Designer
http://www.peg.apc.org/~noodleboy/datacloud.html

Who is Jeffrey Shaw?
http://www.mediamatic.nl/WhoisWho/Shaw/JeffreyShaw.html

Timothy Leary's Home Page
http://www.leary.com/

Ansel Adams Homepage
http://bookweb.cwis.uci.edu:8042/AdamsHome.html

The Yosemite Valley
http://www.terraquest.com/highsights/valley/yosemite.html

Burning the Interface MCA
http://www.mca.com.au/burning/index.html

Experimenta Media Arts
http://www.peg.apc.org/~experimenta/

Musuem of Contemporary Art, Sydney Artlink
http://www.mca.com.au/index.html

ARS Electronica Center
http://www.aec.at/

Adobe Online publishing Magazine
http://www.adobemag.com/

Joels QTVR Workbook
http://solutions.apple.com/pub/quicktime-vr/jcannon/Workbook.html

Mann/QTVR Links
http://www.mannphoto.com/qtvrl.html

Cutting Edge Media QTVR
http://www.cemedia.com/qtvr/qtvr.html

Curriculum Vitae

Megan Anne Jones

Born in Canberra, Australia 1972

Education

1996-97 Candidate for Graduate Diploma of Art (Photomedia)
Canberra School of Art, Institute of the Arts, Australian National University

1990 -92 Bachelor of Arts in Communication
Majoring in Advertising/Marketing
University of Canberra

Group Exhibitions

1997 *After Hours* , Canberra School of Art Foyer Gallery

Record , Photospace, Canberra School of Art

Summer Salon 1997, Centre for Contemporary Photography, Fitzroy VIC

1996 *X of Us,* Raglan Gallery, Cooma NSW

Landmarks 3, Photospace, Canberra School of Art

Relevant Work Experience

1997 Interactive MultiMedia Demonstrator
Canberra School of Art, ITA ANU

1997 Open Art Introduction to Black and White Photography
(Folio Preparation) Teaching/ Casual Academic
Canberra School of Art, ITA ANU

1996-1997 Open Art Advanced Colour Photography
Teaching/ Casual Academic
Canberra School of Art, ITA ANU

1996 Multimedia Assistant
Australian Institute of Aboriginal and Torres Strait Islander Studies
Acton House, Acton ACT

1994-1995 Darkroom Operator
Australian Institute of Aboriginal and Torres Strait Islander Studies
Acton House, Acton ACT